

REMARKS/ARGUMENTS

Claims 1-25 have been resubmitted. Claims 1, 9-11, 16-18 and 25 have been amended.

The Examiner has rejected Claims 1, 11, 17, 18 and 25 under 35 U.S.C. §112, second paragraph, as being indefinite. The Examiner also rejected Claims 1-4, 7-11, 14-22 and 25 under 35 U.S.C. §103(a) as being unpatentable over Largman et al. in view of McGregor et al. The Examiner has further rejected Claims 12 and 13 under 35 U.S.C. §103(a) as being unpatentable over Largman et al. in view of McGregor et al. and in further view of Dalton et al. Finally, the Examiner has rejected Claims 5-6 and 23-24 over Largman et al. in view of McGregor et al. and in further view of Huey.

Examiner Interview

Applicants wish to thank Examiner Cole for courtesies extended to Applicants' representatives during a telephone interview on June 1, 2004. Although no consensus was reached, the Examiner stated that the previous amendments to the claims were a step in the right direction, but that there needed to be a greater criticality with regard to either fiber shape, the amount of microspheres incorporated or the degree of expansion of the microspheres to overcome the §103 rejection. Applicants also put forth reasoning as to why there was no motivation to combine the Largman et al. and McGregor et al. references to give the present invention but the Examiner did not agree. These matters will be discussed in more detail below.

§112 Rejections

Claims 1, 11, 17, 18 and 25 were rejected under 35 U.S.C. §112, second paragraph as being indefinite. Specifically, the Examiner believed it was not clear whether the surface projection and the T-shaped lobes recited in the claims referred to the same element. Furthermore, the Examiner believed that the phrase "at least one surface projection" was unclear as the claim also referred to the distance between the caps of the T-shaped lobes and therefore there should be at least two lobes. Applicants have amended the claims to clarify this matter, replacing the phrase "at least one surface projection" with "at least two T-shaped lobes." Applicants have also amended dependent Claims 9, 10 and 16 to reflect the amendments made to Claims 1 and 11.

Finally, the Examiner believes that the claims are indefinite because there is no recitation of how the distance between adjacent caps of the T-shaped lobes is measured. Applicants submit that it would be clear to one in the art, upon reading the specification that the distance would be measured from adjacent ends of the caps. In an effort to expedite the prosecution of this case, but in no way conceding to the validity of the rejection, Applicants have amended the claims to read "the distance between the ends of the adjacent caps." Basis for this amendment can be found on page 7, lines 25-29 of the specification and also in Figure 2A.

Applicants thus submit that amended Claims 1, 11, 17, 18 and 25 are definite and respectfully request withdrawal of the §112 rejection.

§103(a) Rejections

Largman et al.

The Largman reference relates to a trilobal or quadrilobal fiber formed from thermoplastic polymers, where the fiber includes a cross-section. The

cross-section includes a central core having three or four T-shaped lobes, where the legs of each intersect at the center of the core. According to the Largman reference the use of these fibers in insulating materials produces material with increased loft.

In contrast to the present invention, the Largman reference does not teach or suggest using expandable microspheres in the disclosed fibers or fiber material.

McGregor et al.

The McGregor reference relates to a multiple layered insulation material having expanded microspheres to give the material increased loft. The expanded microspheres are held in the insulation material by a barrier layer and/or *microfibers* forming an entrapping mesh around the expanded microspheres.

The McGregor reference, in contrast to the present invention, does not teach or suggest incorporating microspheres into an insulation material by engaging an expanded microspore with an intra-fiber void formed by T-shaped lobes in a fiber.

For a claim to be obvious under 35 U.S.C. §103(a), there must be some teaching or motivation to combine references to produce the claimed invention. Furthermore, "*particular findings* must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed." *In re Kozab*, 217 F.3d 1365, 1371, 55 USPQ2d 1453, 1459 (Fed. Cir. 2000)(emphasis added). The Federal Circuit has further stated that "[o]ur case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based

obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.” *In re Dance*, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998).

Applicants submit, that upon rigorous analysis, that there is no motivation or particular reason for the skilled artisan to combine the Largman or McGregor references to give the present invention. The Examiner states that the skilled artisan would be motivated to incorporate the expandable microspheres of the McGregor reference into the insulation material of the Largman reference “by the expectation that this would further enhance the insulation properties of the insulation by improving the loft of the insulation.” Page 3 of the Office Action. However, incorporating expandable microspheres to increase the loft of insulating fiber material was not a new concept to the McGregor reference. Expandable microspheres were being incorporated into insulation material using a binder material prior to the McGregor patent. Column 2, lines 20-46. However, although there was a need for increased loft, it was not obvious to those skilled in the art to incorporate expandable microspheres into the fiber material of the Largman reference in the ten years prior to the present invention.

Moreover, using the fiber material of the Largman reference in the insulation material of the McGregor reference does not give the present invention. One insulation material taught by the McGregor reference is a multilayer insulation material in which expandable microspheres are retained within the insulation material by barrier layers. See Figures 1 and 2, Column 4, lines 19-35. Moreover, the McGregor reference teaches that the advantage of using the barrier layers is that *any* insulation material, particularly those already in commercial use, may be used and the barrier layers sewn over the material. Column 3, lines 22-30. A second insulation material taught by the McGregor reference consists of entangled microdenier fibers which are discrete and unconnected elements and which form a mesh for entangling the expandable

microspheres. Column 7, lines 4-9; Column 11, lines 10-47. However, this insulation material is limited to microfibers that must be blown *along with* the expandable microspheres onto a substrate. *Id*; Figure 9.

In contrast, the composite material of the present invention comprises a fiber material having at least one fiber with intra-fiber voids for engaging microspheres. The fiber material additionally has one inter-fiber void. The present invention therefore distinguishes between an inter-fiber void, similar to that created by the microfiber mesh of the McGregor reference and an intra-fiber void.

Moreover, there would be no advantage to using the fiber material of the Largman reference with the barrier layers of the McGregor reference. The barrier layer retains the microspheres in the insulation material and the addition of the fiber material of the Largman material to engage the microspheres would be redundant. Nor would it be obvious to use the *fibers* of the Largman reference in the mesh *microfiber* layer of the McGregor reference to produce the present invention.

Finally, the McGregor reference teaches that any insulation material may be used in the present invention. The McGregor reference states that "...the process of the present invention is handicapped by tight constraints on the type of insulation material which can be employed...." Therefore, the skilled artisan may choose from many insulation materials known in the art. Without using the present invention as a blue print, there is no teaching, suggestion or motivation to use the insulation material of the Largman reference over other insulation materials available. In hindsight, one may believe that it would be obvious to try using the expandable microspheres of the McGregor reference with the insulation material of the Largman reference, but "obvious to try" cannot be equated with obviousness.

Applicants thus submit that neither the Largman reference nor the McGregor reference, alone or in combination, teach or suggest the present invention. Nor is there any motivation to use the expandable microspheres of the McGregor reference with the insulation material of the Largman reference to produce the present invention. Applicants therefore respectfully request withdrawal of the rejection.

Dalton et al.

The Dalton reference relates to fibers with a shape factor up to about 4 being suitable for insulation products. The Dalton reference does not teach the use of expandable microspheres engaged in an intra-fiber void of the fibers, as in the present invention. Nor does the Dalton reference cure the deficiencies of the Largman and McGregor references as discussed above.

Applicants thus submit that the Dalton reference, either alone or in combination with the Largman and McGregor references, does not teach or suggest the present claimed invention and therefore respectfully request withdrawal of the rejection.

Huey

The Huey reference teaches that both mineral fibers such as glass fibers and synthetic fibers can be formed into shaped fibers which are suitable for insulating material. The Huey reference does not teach the use of expandable microspheres engaged in an intra-fiber void of the shaped fibers, as in the present invention. Nor does the Huey reference cure the deficiencies of the Largman and McGregor references as discussed above.

Applicants thus submit that the Huey reference, either alone or in combination with the Largman and McGregor references, does not teach or suggest the present claimed invention and therefore respectfully request withdrawal of the rejection.

CONCLUSION

Applicants would again like to thank the Examiner for the telephone interview of June 1, 2004.

Reconsideration and withdrawal of the Office Action with respect to Claims 1-25 is requested.

In the event the examiner wishes to discuss any aspect of this response, please contact the attorney at the telephone number identified below.

Respectfully submitted,

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